[Color index: Important | Notes | Extra| Video-Case]
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Postpartum Hemorrhage

Objectives:

- List the risk factors for postpartum hemorrhage
- Construct a differential diagnosis for immediate and delayed postpartum hemorrhage
- Develop an evaluation and management plan for the patient with postpartum hemorrhage including consideration of various resource settings

References: kaplan lecture note2018, Hacker & Moore's 6th ,433 team and APGO video.

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Postpartum Hemorrhage

Definition: vaginal delivery blood loss ≥500 mL or cesarean section blood loss ≥1,000 mL
sometimes it's hard to assess blood loss so we se the Hct if it has decreased more than 10% "in vaginal delivery"

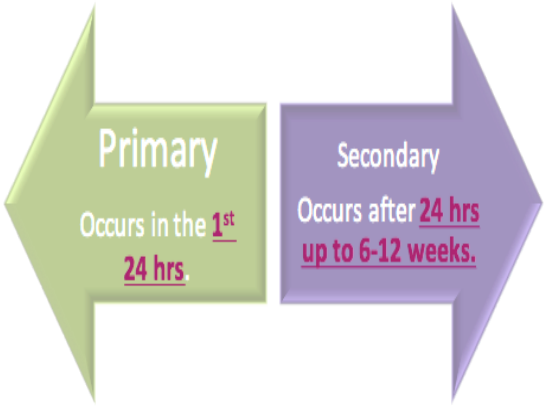
❖ CLASSIFICATIONS:

- Primary (99% of cases) or secondary (delayed)

DDx of

1ry:

- **Uterine atony**
- Lacerations
- Retained placenta
- DIC
- Uterine inversion
- coagulopathy



2ndary:

- Abnormal placentation: (Subinovulation, accreta, retained
- Infection(endometritis)

cause	Risk factors	Clinical findings	Management
Uterine atony (80%) Failure of the uterus to contract after placenta separation **(after delivery, the uterine fundus must be just below the level of the umbilicus. if the uterus is atonic, it'd be above the umbilicus and feel soft "atonic")**	**1-Hx of PPH** **2- protracted labor** **3-Grand multiparity (a parity of 5 or more)** First 3 are high risks **4- Oxytocic augmentation of labor** **5- rapid labor** **6- overdistended uterus** (As in multiple gestations, polyhydramnios, macrosomia baby) **7-Uterine leiomyomata** **8- chorioamnionitis** **9- Vit D def** **10-Medications (MgSO4, β -adrenergic agonists,halothane)** **11-full bladder**	**A soft uterus (feels like dough) palpable above the umbilicus.**	-Start with a bimanual compression and massage of the uterine corpus may control the bleeding and cause the uterus to contract. **Medical:** **1st to start with:** **oxytocin** to increase uterine tone **2nd:** **- methylergonovine IM** **(contraindicated in HTN)** ergot alkaloids, and It works by increasing the rate and strength of contractions and the stiffness of the uterus muscles. **OR** **- carboprost IM** HEMABATE, PGF2 α). (Contraindicated in a asthma) **MISOPROSTOL** ORALLY OR RECTALLY **If failed:** **Uterine tamponade:** **- Bakri balloon** inserted through a catheter **- Uterine packing** with gauze **Surgical:** *B-lynch suture (it compresses the uterus). *uterine artery ligation. *interventional radiology to asses in uterine artery embolization) IF ALL THESE STEPS FAILED HYSTERECTOMY SHOULD BE PERFORMED.
Lacerations(15%)	**-Uncontrolled vaginal delivery (most common)** - difficult delivery, and operative vaginal delivery.	lacerations over (cervix, vagina, perineum) in the presence of a contracted uterus.	Surgical repair (Suturing)
Retained placenta(5%)	**-Accessory placental lobe (most common)** - abnormal trophoblastic uterine invasion (e.g., cervix, vagina, perineum)	Missing placental cotyledons(lobules of placenta) in the presence of a contracted uterus.	Manual removal or uterine curettage under ultrasound guidance

DIC Rare	**-Abruption placentae (most common)** - severe preeclampsia, amniotic fluid embolism, and prolonged retention of a dead fetus.	Generalized oozing or bleeding from IV sites or lacerations in the presence of a contracted uterus.	Removal of pregnancy tissues from the uterus, intensive care unit (ICU) support, and selective blood product replacement.
-Uterine inversion Rare	**-Myometrial weakness (most common)** -previous uterine inversion.	Beefy-appearing bleeding mass in the vagina and failure to palpate the uterus abdominally.	Uterine replacement by elevating the vaginal fornices and lifting the uterus back into its normal anatomic position, followed by IV oxytocin

❖ N.B: Usually the cause can be identified but, If despite careful searching, no correctable cause of continuing hemorrhage is found, it may be necessary to perform a laparotomy and bilaterally surgically ligate the uterine or internal iliac arteries. Hysterectomy would be a last resort.

*Any patient with PPH you should intervene early to prevent DIC.

*Packed RBC are the mainstay of replacement therapy.

* when there is severe ongoing hemorrhage ≥4 units PRBCs/1h OR ≥10 units PRBCs/12-24h

*It is recommended to transfuse with 1:1:1 ration .
(PRBC : FFP : Platelets)

❖ Management of Patients known to have Risks for Postpartum Hemorrhage:

- prevention of uterine atony by active management of **third stage** of labor:

★ fundal massage
★ gentle cord traction
★ IV/IM oxytocin

- **General measure** in case of blood loss condition:

❑ Assess the patient's overall status including vital signs.
❑ Make sure you have adequate physician and nursing support.
❑ IV access and blood availability.

Evaluation :

Bimanual exam	Inspection	Intervention
If you found a bulgy, soft uterus this indicates (uterine atony) •You can also asses for retained placental fragments and raptured uterine wall.	Careful inspection of the vulva, vagina, perineum and cervix	•Depending on the etiology

Case

Tracy is a 33 year-old G1 woman who underwent induction of labor for a post-dates pregnancy at 41 weeks and 3 days gestation. Prostaglandins were used to accomplish cervical ripening and an oxytocin infusion was used to induce labor.The patient had a lengthy first and second stage. Ultimately, the fetus was delivered with vacuum assistance. The baby weighed 9 pounds 3 oz at birth. The third stage of labor was uncomplicated. Thirty minutes later you are called to the recovery room because Tracy has experienced brisk vaginal bleeding that did not respond to uterine massage by her Nurse.

1. What is the definition of postpartum hemorrhage?

- Blood loss ≥500 ml within 24 hours after vaginal delivery.
- OR ≥1000 mL after Cesarean delivery.

2. What elements of this case present risk factors for a postpartum hemorrhage?

-Induced labor
-Prolonged labor
-Operative vaginal delivery
-Fetal macrosomia

3. What are other risk factors for postpartum hemorrhage?

-Grand Multiparity
-Over-distended uterus (multiples, hydramnios, fetal macrosomia)
-Augmented labor
-Prolonged labor
-Operative delivery
-Previous history of postpartum hemorrhage
-Chorioamnionitis

4. What are the causes of postpartum hemorrhage?

-Uterine atony (most common)
-Retained placental tissue
-Maternal trauma/obstetric lacerations Uterine inversions
-Maternal coagulopathy (pre-existing or acquired)

5. What is the management for postpartum hemorrhage?

1.Prevention (for those risk factors):
• Active Management of the third stage of labor
Oxytocin (IV or IM) with delivery of anterior shoulder or delivery of the fetus
Gentle cord traction following delivery of fetus
Suprapubic support of the uterus to prevent inversion while providing cord traction.
2.Diagnosis of PPH and Management :
ABC, Assess tone of uterus and management will be based on etiology :
***Bimanual massage**

- **if atony most likely** : Employ uterotonics (oxytocin, ergonovine/methyl-ergonovine, 15-methyl prostaglandin F2 α , misoprostol)
- **Lacerations** : suturing
- **retained placenta** : Manual removal or uterine curettage

*Empty bladder, insert foley catheter for fluid monitoring
*If uterus does not respond to these methods consider alternatives measures (intrauterine compression, surgery with compression sutures, arterial ligation, hysterectomy)

And blood should be transfused for any patient with PPH with **1:1:1 ratio** (PRBC : FFP : Platelets)